

Abstract of the Disclosure

An apparatus for filling and cleaning channels and inlet ports of a microchip substrate is disclosed. A device of the apparatus comprising an array of tubes is inserted into each of the inlet ports of the microchip. The array of tubes of the device comprises a plurality of pressure tubes, surrounded by a plurality of vacuum tubes. In conjunction with this, pressurized solutions such as matrix or wash are introduced into common openings on the microchip that provide a passage to microchannels of the microchip with the use of pressure tip injectors of the apparatus. As matrix or wash solutions are pumped through the common openings and microchannels of the microchip substrate, wash solutions are pumped through the plurality of pressure tubes and everything is vacuumed through the plurality of vacuum tubes surrounding the plurality of pressure tubes. Various reservoirs of solutions are selected and allowed to flow by proper valve actuation. This process can be performed manually or easily automated by utilizing appropriate valves and control hardware/software.